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EXAMINER	
WEST, JEFFREY R	
ART UNIT	PAPER NUMBER
2857	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/708,799	YAU, WEI-GUAN	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-13 and 15-34* is/are pending in the application.

4a) Of the above claim(s) *7,8,10,24,25 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,9,11-13,15-23,26, and 28-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Infomation Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 26, 2006, has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 21 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 is considered to be vague and indefinite because it refers to "the actual time interval between every two adjacent reference events." Claim 18, however, contains no mention of "every two adjacent reference events" and therefore it is unclear to one having ordinary skill in the art as to what specific time interval "the actual time interval between every two adjacent reference events" refers.

Claim 33 is similarly rejected under 35 U.S.C. 112, second paragraph, because it refers to "the actual time interval between every two adjacent reference events"

while parent claim 30 contains no mention of "every two adjacent reference events" and therefore it is unclear to one having ordinary skill in the art as to what specific time interval "the actual time interval between every two adjacent reference events" refers.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 18-20, 22, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,084,441 to Kawai in view of U.S. Patent No. 6,141,296 to Progar.

With respect to claim 18, Kawai discloses a timer system comprising an imprecise timer for repeatedly triggering a reference event according to a predetermined time interval (column 7, lines 30-38 and column 8, lines 25-46), a first storage unit for storing a threshold value (column 9, lines 48-52 and 59-61), a second storage unit for storing a count value corresponding to a plurality of reference events generated from the timer (column 9, lines 59-61), a tracking module electrically connected to the timer for tracking at least a first actual time interval between a first reference event and a second reference event occurring after the first reference event (column 7, lines 54-55 and 59-64 and column 8, lines 7-8), a

calculating module electrically connected to the tracking module for calculating a compensation value corresponding to the predetermined time interval and one of the actual time interval (column 8, lines 5-10), and a compensating module electrically connected to the calculating module and at least one of the first and second storage units for reducing a difference between the count value and the threshold value (column 10, lines 4-22) wherein if the count value reaches the threshold value, the tracking module stops tracking and outputs the desired signal (column 10, lines 24-28).

With respect to claim 19, Kawai discloses a decision logic inherently electrically connected to the first and second storage units for generating an acknowledgement event if the count value reaches the threshold value (i.e. comparing the stored count value to the corrected and stored threshold value) (column 10, lines 24-28).

With respect to claim 20, Kawai discloses that the first and second storage units, the calculating module, compensating module, and the decision logic are positioned within a microprocessor, and the timer is driven by the microprocessor (column 7, lines 30-58 and Figure 2).

With respect to claim 22, Kawai discloses that the compensating module determines the compensation value by calculating a ratio of the actual time interval to the predetermined time interval (column 8, lines 5-10).

With respect to claim 29, Kawai discloses that the reference events are system interrupts of the timer system (column 7, lines 59-64).

Kawai further discloses that the tracking module comprises a clock generator for generating a reference clock and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events (column 7, lines 31-38 and line 59 to column 8, line 4).

As noted above the invention of Kawai teaches many of the features of the claimed invention and while the invention of Kawai does teach tracking an actual time interval between each of the reference events to calculate a compensation value that is used for reducing a difference between the count value and the threshold value, Kawai does not specifically indicate that the actual time interval between each of the reference events is used to calculate a plurality of compensation values for a selectively tracked plurality of actual time intervals, each compensation value corresponding to the predetermined time interval and one of the actual time intervals.

Progar teaches a time-of-day clock assembly having means for correcting imprecision of a timer repeatedly triggering interrupts (column 1, lines 4-7 and column 3, lines 25-37) comprising selectively tracking a plurality of actual time intervals between each of the interrupts according to a count value (column 4, line 63 to column 6, line 9 and column 6, lines 24-32), each actual time interval corresponding to an actual time between a first interrupt and a second interrupt occurring after the first interrupt (column 6, lines 5-9), calculating a plurality of compensation values, each compensation value corresponding to the predetermined time interval and one of the actual time intervals (column 6, lines 9-22), and utilizing

each compensation value to form a dynamically calculated compensation value by accumulating a plurality of actual time intervals corresponding to a plurality or reference events for reducing the difference between the actual timer value and a desired timer value (column 5, lines 19-58 and column 6, lines 24-51).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai to specify that the actual time interval between each of the reference events is used to calculate a plurality of compensation values for a selectively tracked plurality of actual time intervals, each compensation value corresponding to the predetermined time interval and one of the actual time intervals, as taught by Progar, because while the invention of Kawai only calculates one compensation value thereby only correcting the associated reference event count once, the combination, as suggested by Progar, would have improved the invention of Kawai by providing repeated updating of the count value to provide increased and continuous accuracy and allowing more precise updating and overall operational efficiency through the determination and accumulation of fraction error values over user desired time intervals (column 1, lines 41-53, column 5, lines 1-17 and column 5, line 59 to column 6, line 4) while also allowing the system to selectively track the time interval for fractional error correction based on a desired time thereby providing more user flexibility and control (column 4, line 63 to column 6, line 9 and column 6, lines 24-32).

6. Claim 21, as may best be understood, is rejected under 35 U.S.C. 103(a) as

being unpatentable over Kawai in view of Progar and further in view of U.S. Patent No. 3,889,189 to Lode.

As noted above, the invention of Kawai and Progar teaches many of the features of the claimed invention and while the invention of Kawai and Progar does teach that the tracking module comprises a clock generator for generating a reference clock and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events (Kawai; column 7, lines 31-38 and line 59 to column 8, line 4), and while one having ordinary skill in the art would understand the necessity to reset a time value before measuring subsequent time intervals, the combination does not explicitly teach this feature.

Lode teaches a digital time measurement system comprising a counter for tracking an actual time interval including a method for resetting an existing time value before tracking the actual time interval (column 60, lines 51-56).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai and Progar to explicitly teach resetting the time value before tracking an actual time interval, as taught by Lode, because, as suggested by Lode and considered well-known in the art, the combination would have insured that the newly measured interval is accurate by clearing any time value remaining from a previously measured interval which would skew results (column 60, lines 51-56).

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in

view of Progar and further in view of U.S. Patent No. 4,374,358 to Hirose.

As noted above, the invention of Kawai and Progar teaches many of the features of the claimed invention and while the invention of Kawai and Progar does teach that the compensating module determines the compensation value by calculating a ratio of the actual time interval to the predetermined time interval (Kawai; column 8, lines 5-10), the combination does not explicitly include calculating the compensation value as an integer closest to the ratio.

Hirose teaches an apparatus for measuring the oscillation frequency of a voltage controlled oscillator comprising means for multiplying a counter value by a ratio wherein the ratio is obtained and rounded to a closest integer before multiplying (column 3, lines 42-51).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai and Progar to explicitly include calculating the compensation value as an integer closest to the ratio, as taught by Hirose, because the combination of Kawai and Progar does teach applying the compensation value to the threshold value and Hirose suggests that the combination would have provided a sufficiently accurate compensation value while simplifying the processing and threshold determination by using whole numbers (column 3, lines 42-51).

8. Claims 1, 3, 5, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,084,441 to Kawai in view of U.S. Patent No. 4,903,251 to Chapman.

As noted above, the invention of Kawai teaches many of the features of the claimed invention. Further:

With respect to claim 1, Kawai discloses a method of timing utilizing an imprecise timer, the timer repeatedly triggering a reference event according to a predetermined time interval (column 7, lines 30-38 and column 8, lines 25-46), the method comprising the steps of storing a threshold value (i.e. numerical limit value) (column 9, lines 48-52), storing a count value corresponding to a plurality of reference events generated from the timer (i.e. count of clock pulses) (column 9, lines 59-61), tracking a first actual time interval between a first reference event and a second reference event occurring after the first reference event (column 7, lines 54-55 and 59-64 and column 8, lines 7-8), calculating a first compensation value corresponding to the predetermined time interval and the first actual time interval (column 8, lines 5-10), applying the first compensation value to the threshold value for reducing a difference between the count value and the threshold value (column 10, lines 4-22) and generating an acknowledgement event if the count value reaches the threshold value (column 10, lines 24-28).

With respect to claim 3, Kawai discloses that the step of tracking the actual time interval further comprises tracking the actual time interval between every two adjacent reference events (column 7, lines 59-64 and column 9, lines 16-19).

With respect to claim 5, Kawai discloses that the step of calculating a first compensation value further comprises determining the first compensation value by

calculating a ratio of the first actual time interval to the predetermined time interval (column 8, lines 5-10).

With respect to claim 12, Kawai discloses that the reference events are system interrupts (column 7, lines 59-64).

Kawai discloses a method of timing utilizing an imprecise timer, the timer repeatedly triggering a reference event (column 7, lines 30-38 and column 8, lines 25-46), the method comprising the steps of storing a threshold value (i.e. numerical limit value) (column 9, lines 48-52) and a count value (i.e. count of clock pulses) (column 9, lines 59-61), tracking at least a first actual time interval between a first reference event and a second reference event occurring after the first reference event (column 7, lines 54-55 and 59-64 and column 8, lines 7-8), updating the threshold value (column 10, lines 4-22) according to a first value corresponding to the first actual time interval (column 8, lines 5-10), and generating an acknowledgement event when the count value reaches the threshold value (column 10, lines 24-28).

Kawai discloses that the step of tracking actual time intervals between every two reference events further comprises utilizing a reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events (column 7, lines 31-38 and line 59 to column 8, line 4).

As noted above, the invention of Kawai teaches many of the features of the claimed invention and while the invention of Kawai does teach storing a threshold value, storing a count value corresponding to a plurality of reference events

generated from the timer, tracking a first actual time interval between a first reference event and a second reference event occurring after the first reference event, calculating a first compensation value corresponding to the predetermined time interval and the first actual time interval, applying the first compensation value to the threshold value for reducing a difference between the count value and the threshold value, and generating an acknowledgement event if the count value reaches the threshold value, wherein if the count value reaches the threshold value, the tracking module stops tracking and outputs the desired signal, the invention of Kawai discloses the compensation of the threshold value to reduce the difference between the count value and the threshold value rather than maintaining the threshold value and adjusting the count value.

Chapman teaches a method for dynamically compensating for the imprecision of a timer, the timer repeatedly triggering a reference event (column 3, line 64 to column 4, line 19), the method comprising the steps of storing a count value (column 5, lines 52-53), tracking an actual time interval between every two reference events (column 5, lines 27-32), and updating the count value by a value calculated through accumulating a plurality of actual time intervals corresponding to a plurality of reference events (column 5, lines 27-37 and column 6, lines 1-5).

Chapman teaches calculating a compensation value from the predetermined time interval and the actual time interval wherein calculating a compensation value further comprises determining the compensation value by calculating a ratio of the actual time interval to the predetermined time interval (column 5, lines 27-37).

Chapman teaches that the step of utilizing the compensation value comprises individually adding the compensation value to the count value (column 6, lines 1-5) or individually subtracting the compensation value from the count value (i.e. adding a negative) without adjusting a threshold voltage (column 6, lines 31-34) periodically upon receiving an interrupt (column 5, lines 42-50).

Chapman teaches that the step of tracking the actual time interval further comprises tracking the actual time interval between every two adjacent reference events (column 5, lines 27-32).

Chapman teaches that the reference events are system interrupts (column 3, lines 64-68).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai to compensate the count value rather than the threshold value, as taught by Chapman, because, as suggested by Chapman, the combination would have determined the difference between the actual fixed time period between interrupts and periodically corrected the corresponding count value to obtain an accurate count value (column 5, lines 27-37 and column 6, lines 1-5). The invention of Kawai compensates the threshold value and assumes that the interrupt interval error will maintain constant until the threshold is met while one having ordinary skill in the art would recognize that the interrupt interval tends to drift over time (See for example, U.S. Patent No. 4,708,491 to Luitje; column 3, lines 53-55). Therefore, by periodically adjusting the count value, as taught by Chapman, the combination would

have provided a more accurate timing adjustment in Kawai by obtaining new compensation values on a periodic basis thereby compensating for drift over time.

Further, since the invention of Kawai stops the interval tracking and outputs the signal/acknowledgement when the threshold is reached (Kawai, column 10, lines 24-28) and the invention of Chapman teaches periodically obtaining an interval error and adjusting the count value (column 5, lines 27-37 and 42-50 and column 6, lines 1-5), the combination would have continued to apply first, second, etc. compensation values to the count value for reducing the difference between the count value and the threshold value until it is determined that the count value reaches the threshold value.

9. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in view of Progar and further in view of U.S. Patent No. 4,903,251 to Chapman.

As noted above, the invention of Kawai and Progar teaches many of the features of the claimed invention and while the invention of Kawai and Progar does teach storing a threshold value, storing a count value corresponding to a plurality of reference events generated from the timer, tracking a first actual time interval between a first reference event and a second reference event occurring after the first reference event, calculating a first compensation value corresponding to the predetermined time interval and the first actual time interval, applying the first compensation value to the threshold value for reducing a difference between the

count value and the threshold value, and generating an acknowledgement event if the count value reaches the threshold value, wherein if the count value reaches the threshold value, the tracking module stops tracking and outputs the desired signal, the combination discloses the compensation of the threshold value to reduce the difference between the count value and the threshold value rather than maintaining the threshold value and adjusting the count value.

Chapman teaches a method for dynamically compensating for the imprecision of a timer, the timer repeatedly triggering a reference event (column 3, line 64 to column 4, line 19), the method comprising the steps of storing a count value (column 5, lines 52-53), tracking an actual time interval between every two reference events (column 5, lines 27-32), and updating the count value by a value calculated through accumulating a plurality of actual time intervals corresponding to a plurality of reference events (column 5, lines 27-37 and column 6, lines 1-5).

Chapman teaches calculating a compensation value from the predetermined time interval and the actual time interval wherein calculating a compensation value further comprises determining the compensation value by calculating a ratio of the actual time interval to the predetermined time interval (column 5, lines 27-37).

Chapman teaches that the step of utilizing the compensation value comprises individually adding the compensation value to the count value (column 6, lines 1-5) or individually subtracting the compensation value from the count value (i.e. adding a negative) without adjusting a threshold voltage (column 6, lines 31-34) periodically upon receiving an interrupt (column 5, lines 42-50).

Chapman teaches that the step of tracking the actual time interval further comprises tracking the actual time interval between every two adjacent reference events (column 5, lines 27-32).

Chapman teaches that the reference events are system interrupts (column 3, lines 64-68).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai and Progar to compensate the count value rather than the threshold value, as taught by Chapman, because, as suggested by Chapman, the combination would have determined the difference between the actual fixed time period between interrupts and periodically corrected the corresponding count value to obtain an accurate count value (Chapman; column 5, lines 27-37 and column 6, lines 1-5). The invention of Kawai and Progar compensates the threshold value and assumes that the interrupt interval error will maintain constant until the threshold is met (Kawai; column 10, lines 23-27) while one having ordinary skill in the art would recognize that the interrupt interval tends to drift over time (See for example, U.S. Patent No. 4,708,491 to Luitje; column 3, lines 53-55). Therefore, by periodically adjusting the count value, as taught by Chapman, the combination would have provided a more accurate timing adjustment in Kawai and Progar by obtaining new compensation values on a periodic basis thereby compensating for drift over time.

10. Claims 13, 15, 17, 30-32, and 34 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kawai in view of Chapman and further in view of U.S. Patent No. 6,141,296 to Progar.

As noted above the invention of Kawai and Chapman teaches many of the features of the claimed invention and while the invention of Kawai and Chapman does teach tracking an actual time interval between each of the reference events to calculate a compensation value that is used for reducing a difference between the count value and the threshold value and repeatedly applying first, second, etc. compensation values to the count value for reducing the difference between the count value and the threshold value until it is determined that the count value reaches the threshold value, the combination does not explicitly indicate that the actual time interval tracking is selective.

Progar teaches a time-of-day clock assembly having means for correcting imprecision of a timer repeatedly triggering interrupts (column 1, lines 4-7 and column 3, lines 25-37) comprising selectively tracking a plurality of actual time intervals between each of the interrupts according to a count value (column 4, line 63 to column 6, line 9 and column 6, lines 24-32), each actual time interval corresponding to an actual time between a first interrupt and a second interrupt occurring after the first interrupt (column 6, lines 5-9), calculating a plurality of compensation values, each compensation value corresponding to the predetermined time interval and one of the actual time intervals (column 6, lines 9-22), and utilizing each compensation value to form a dynamically calculated compensation value by accumulating a plurality of actual time intervals corresponding to a plurality or

reference events for reducing the difference between the actual timer value and a desired timer value (column 5, lines 19-58 and column 6, lines 24-51).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai and Chapman to explicitly indicate that the actual time interval tracking is selective, as taught by Progar, because, as suggested by Progar, the combination would have improved the system of Kawai and Chapman by allowing the system to selectively track the time interval for fractional error correction based on a desired time a thereby providing more user flexibility and control (column 4, line 63 to column 6, line 9 and column 6, lines 24-32).

11. Claims 16 and 33, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in view of Chapman and Progar and further in view of U.S. Patent No. 3,889,189 to Lode.

As noted above, Kawai in combination with Chapman and Progar teaches many of the features of the claimed invention and while the invention of Kawai, Chapman, and Progar does teach that the tracking module comprises a clock generator for generating a reference clock, and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events (Chapman; column 4, lines 20-29, column 5, lines 27-32 and Figure 2), and while one having ordinary skill in the art would understand the necessity to reset a time value before measuring subsequent time intervals, the combination does not explicitly teach this feature.

Lode teaches a digital time measurement system comprising a counter for tracking an actual time interval including a method for resetting an existing time value before tracking the actual time interval (column 60, lines 51-56).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai, Chapman, and Progar to explicitly teach resetting the time value before tracking an actual time interval, as taught by Lode, because, as suggested by Lode and considered well-known in the art, the combination would have insured that the newly measured interval is accurate by clearing any time value remaining from a previously measured interval which would skew results (column 60, lines 51-56).

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in view of Chapman and further in view of U.S. Patent No. 3,889,189 to Lode.

As noted above, the invention of Kawai and Chapman teaches many of the features of the claimed invention and while the invention of Kawai and Chapman does teach that the tracking module comprises a clock generator for generating a reference clock, and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events (Chapman; column 4, lines 20-29, column 5, lines 27-32 and Figure 2), and while one having ordinary skill in the art would understand the necessity to reset a time value before measuring subsequent time intervals, the combination does not explicitly teach this feature.

Lode teaches a digital time measurement system comprising a counter for tracking an actual time interval including a method for resetting the time value before tracking the actual time interval (column 60, lines 51-56).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai and Chapman to explicitly teach resetting the time value before tracking an actual time interval, as taught by Lode, because as suggested by Lode, and considered well known in the art, the combination would have insured that the newly measured interval is accurate by clearing any time value remaining from a previously measured interval which would skew results (column 60, lines 51-56).

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in view of Chapman and further in view of U.S. Patent No. 4,374,358 to Hirose.

As noted above, the invention of Kawai and Chapman teaches many of the features of the claimed invention and while the invention of Kawai and Chapman does teach determining a compensation value as a ratio of the actual time interval and the predetermined time interval (Chapman; column 5, lines 28-36) and applying the compensation value to the count value wherein the count value is an integer (Chapman; column 6, lines 1-5), the combination does not explicitly include calculating the compensation value as an integer closest to the ratio.

Hirose teaches an apparatus for measuring the oscillation frequency of a voltage controlled oscillator comprising means for multiplying a counter value by a ratio

wherein the ratio is obtained and rounded to a closest integer before multiplying (column 3, lines 42-51).

It would have been obvious to one having ordinary skill in the art to modify the invention of Kawai and Chapman to explicitly include calculating the compensation value as an integer closest to the ratio, as taught by Hirose, because the combination of Kawai and Chapman does teach applying the compensation value to the count value wherein the count value is an integer and Hirose suggests that the combination would have provided a sufficiently accurate count value while still obtaining a count value that is a whole number as is expected with regard to interrupt counts and count values in general (column 3, lines 42-51).

Response to Arguments

14. Applicant's arguments with respect to claims 1, 3-6, 9, 11-13, 15-23, 26, and 28-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

U.S. Patent No. 4,708,491 to Luitje teaches a time of day clock wherein interrupt intervals tend to drift over time.

U.S. Patent No. 6,397,283 to Ting teaches a method of automatically adjusting interrupt frequency.

U.S. Patent No. 4,407,589 to Davidson et al. teaches an error correction method and apparatus for electronic timepieces.

U.S. Patent No. 4,400,093 to Jaunin teaches a method for inspecting the running of a timepiece.

U.S. Patent No. 4,282,595 to Lowdenslager et al. teaches a method for digital frequency trimming an oscillator in an electronic timepiece.

U.S. Patent No. 6,981,165 to Marik teaches a method and apparatus for handling an interrupt from a real-time clock to increment a program clock.

U.S. Patent No. 5,392,435 to Masui et al. teaches a microcomputer having a system clock frequency that varies in dependence on the number of nested and held interrupts.

U.S. Patent No. 5,535,380 to Bergkvist, Jr. et al. teaches a system to reduce latency for real time interrupts.

U.S. Patent No. 4,093,873 to Vannier et al. teaches a method for compensating digital counters for quartz crystal oscillators.

U.S. Patent No. 5,325,313 to Herbert et al. teaches a system for measuring timepiece beat interval accuracy.

U.S. Patent No. 4,896,321 to Kawahara teaches a self-monitoring system including a timer for determining the processing time of a unit (abstract), the timer/counter repeatedly triggering a reference event according to a predetermined time interval (column 3, lines 31-35), the method comprising the steps of storing a threshold value (column 3, lines 1-4), storing a count value corresponding to a

plurality of reference events generated from the timer/counter (column 2, lines 5-8 and 42-44), and generating an acknowledgement event if the count value reaches the threshold value (column 3, lines 1-4 and 15-20). Kawahara teaches that the reference events are system interrupts (column 3, lines 31-35). Kawahara further teaches a decision logic electrically connected to the first and second storage units for generating an acknowledgement event (i.e. alarm) if the count value reaches the threshold value (column 3, lines 1-4 and 15-20 and Figure 1).

JP Patent Application Publication No. 10-020052 to Nagaoka teaches a time correction method and device therefor.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (571)272-2226. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner – AU 2857

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